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Spectra of high n and non-low n degrees

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Abstract

We survey known results on spectra of structures and on spectra of relations on computable structures, asking when the set of all highn degrees can be such a spectrum, and likewise for the set of non-low n degrees. We then repeat these questions specifically for linear orders and for relations on the computable dense linear order $\mathbb{Q}$. New results include realizations of the set of non-low n Turing degrees as the spectrum of a relation on $\mathbb{Q}$ for all $n \geq 1$, and a realization of the set of all non-low n Turing degrees as the spectrum of a linear order whenever $n \geq 2$. The state of current knowledge is summarized in a table in the concluding section.

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Keywords

Computability, computable model theory, linear order, relation, spectrum